

Application Serial No.:
09/930,718

Attorney Docket No.:
SP00-231A

a) Amendments to the Claims

1. (*Currently Amended*) ~~A batch-melted, high-ionic-silver, borosilicate glass essentially free of metallic silver (Ag^0), made by melting a batch comprising, in cation percent, 15-60 SiO_2 , 10-30 Al_2O_3 , 10-45 B_2O_3 , and 8-25 Ag_2O .~~

2. (*Original*) The batch-melted high silver glass according to claim 1 wherein the concentration of monovalent ions other than silver does not exceed 2 cation percent.

3. (*Original*) The batch-melted, high-silver glass according to claim 1, comprising high field strength ions.

4. (*Original*) The batch-melted, high-silver glass according to claim 3, wherein the high field strength ions are selected from the group consisting of aluminum, zirconium and tantalum.

5. (*Original*) The batch-melted, high-silver glass according to claim 4, wherein the high field strength ions comprise aluminum.

6. (*Currently Amended*) ~~The batch-melted, high-silver glass according to claim 5, further A batch-melted borosilicate glass comprising ~~aluminum, zirconia-zirconium~~ and/or tantalum but essentially free of metallic silver (Ag^0), made by melting a batch containing at least 2 cation percent silver.~~

7. (*Currently Amended*) The batch-melted, high-silver glass according to claim 6, characterized in that the ratio of aluminum to ~~zirconia-zirconium~~ is at least 3:1.

8. (*Currently Amended*) The melt-formed high silver glass according to claim 6, characterized in that the ratio of tantalum to ~~aluminum-aluminum~~ does not exceed 1:2.

9. (*Original*) The batch-melted, high-silver glass according to claim 3, characterized in that the ratio of high field strength ions to monovalent ions is at least 1.

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10-12. (*Canceled*)

13. (*Currently Amended*) The borosilicate glass of ~~claim 11~~, claim 1, further characterized by being essentially colorless.

14. (*Currently Amended*) The borosilicate glass according to ~~claim 11~~, claim 1, wherein the cation concentration of Ag is between 12.5 cation percent and 25 cation percent.

15. (*Original*) The borosilicate glass according to claim 14 wherein the cation concentration of Ag is less than or equal to the concentration of Al.

16. (*Currently Amended*) The borosilicate glass according to ~~claim 11~~, claim 1, wherein the SiO₂ concentration is between 20 cation percent and 45 cation percent.

17. (*Currently Amended*) The borosilicate glass according to ~~claim 11~~, claim 1, wherein the concentration of B₂O₃ is between 15 cation percent and 30 cation percent.

18. (*Currently Amended*) The borosilicate glass according to ~~claim 11~~, claim 1, wherein the cation concentration of Ag is in the range of 12.5 to 25 cation %, the cation concentration of Al is equal to the cation concentration of Ag, and the concentration of SiO₂ is in the range of 20 to 40 cation %.

19. (*Currently Amended*) The borosilicate glass according to ~~claim 11~~, claim 1, characterized in that the Ag ions can be replaced by less polarizable monovalent ions by the process of ion exchange.

20-21. (*Canceled*)

22. (*Currently Amended*) A lens comprising the glass according to claim 1 a batch-melted borosilicate glass essentially free of metallic silver (Ag⁰), made by melting a batch containing at least 2 cation percent silver.

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23. (*Currently Amended*) A gradient index lens formed by subjecting the glass of claim 10 a batch-melted borosilicate glass essentially free of metallic silver (Ag^0) to an ion-exchange process, said glass being made by melting a batch containing at least 2 cation percent silver.

24-26. (*Canceled*)

27. (*New*) The lens of claim 22, wherein the borosilicate glass comprises, in cation percent, 15-60 SiO_2 , 10-30 Al_2O_3 , 10-45 B_2O_3 , and 8-25 Ag_2O .

28. (*New*) The lens of claim 22, wherein the borosilicate glass is further characterized by being essentially colorless.

29. (*New*) The lens of claim 22, wherein the borosilicate glass comprises between 12.5 cation percent and 25 cation percent of silver.

30. (*New*) The lens of claim 27 wherein in the borosilicate glass, the cation concentration of Ag is less than or equal to the concentration of Al.

31. (*New*) The lens of claim 27, wherein borosilicate glass comprises SiO_2 between 20 cation percent and 45 cation percent.

32. (*New*) The lens of claim 27, wherein the concentration of B_2O_3 in the borosilicate glass is between 15 cation percent and 30 cation percent.

33. (*New*) The lens of claim 27, wherein in the borosilicate glass the cation concentration of Ag is in the range of 12.5 to 25 cation %, the cation concentration of Al is equal to the cation concentration of Ag, and the concentration of SiO_2 is in the range of 20 to 40 cation %.

34. (*New*) The lens of claim 22, wherein the borosilicate glass further comprises aluminum, zirconium and/or tantalum.

35. (*New*) The lens of claim 34, wherein in the borosilicate glass the ratio of aluminum to zirconium is at least 3:1.

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36. (New) The lens of claim 34, wherein in the borosilicate glass the ratio of tantalum to aluminum does not exceed 1:2.

37. (New) The lens of claim 23, wherein the borosilicate glass comprises, in cation percent, 15-60 SiO₂, 10-30 Al₂O₃, 10-45 B₂O₃, and 8-25 Ag₂O.

38. (New) The lens of claim 23, wherein the borosilicate glass is further characterized by being essentially colorless.

39. (New) The lens of claim 23, wherein the borosilicate glass comprises between 12.5 cation percent and 25 cation percent of silver.

40. (New) The lens of claim 37 wherein in the borosilicate glass, the cation concentration of Ag is less than or equal to the concentration of Al.

41. (New) The lens of claim 37, wherein borosilicate glass comprises SiO₂ between 20 cation percent and 45 cation percent.

42. (New) The lens of claim 37, wherein in the borosilicate glass the concentration of B₂O₃ is between 15 cation percent and 30 cation percent.

43. (New) The lens of claim 37, wherein in the borosilicate glass the cation concentration of Ag is in the range of 12.5 to 25 cation %, the cation concentration of Al is equal to the cation concentration of Ag, and the concentration of SiO₂ is in the range of 20 to 40 cation %.

44. (New) The lens of claim 23, wherein the borosilicate glass further comprises aluminum, zirconium and/or tantalum.

45. (New) The lens of claim 44, wherein in the borosilicate glass the ratio of aluminum to zirconium is at least 3:1.

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46. (New) The lens of claim 44, wherein in the borosilicate glass the ratio of tantalum to aluminum does not exceed 1:2.

47. (New) A batch-melted borosilicate glass produced by melting a batch containing a high concentration of silver of at least 2 cation percent, said glass being essentially free of metallic silver (Ag^0), and part of the Ag ions (Ag^+) has been replaced by less polarizable monovalent ions by the process of ion exchange.

48. (New) The borosilicate glass according to claim 47, wherein the batch comprises, in cation percent, 15-60 SiO_2 , 10-30 Al_2O_3 , 10-45 B_2O_3 , and 8-25 Ag_2O .

49. (New) The borosilicate glass of claim 47, further characterized by being essentially colorless and transparent.

50. (New) The borosilicate glass according to claim 47, wherein the glass comprises Ag between 12.5 cation percent and 25 cation percent.

51. (New) The borosilicate glass according to claim 50 further comprising aluminum and having a cation concentration of Ag less than or equal to the concentration of Al.

52. (New) The borosilicate glass according to claim 47, wherein the glass comprises SiO_2 between 20 cation percent and 45 cation percent.

53. (New) The borosilicate glass according to claim 47, wherein the glass comprises B_2O_3 between 15 cation percent and 30 cation percent.

54. (New) The borosilicate glass according to claim 47, wherein the glass comprises Ag ion concentration in the range of 12.5 to 25 cation %, an Al cation concentration equal to the cation concentration of Ag, and a SiO_2 concentration in the range of 20 to 40 cation %.

55. (New) The borosilicate glass according to claim 47 further comprising aluminum, zirconium and/or tantalum.

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56. (New) The glass of claim 55, wherein the ratio of aluminum to zirconium is at least 3:1.

57. (New) The glass of claim 55, wherein the ratio of tantalum to aluminum does not exceed 1:2.